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User Manual

GSM Alarm-Modem

ALMIOG0x

Version 1.0

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Introduction

The GSM I/O and Alarm Modem is a powerful, flexible and economic instrument which is used to control Digital and Analog I/O by SMS or Phone Call.

The instrument is composed of the following: module hardware with GSM connection, USB interface that connects to a personal computer, two Digital Input terminal, two Digital Output terminal, one Analog Input terminal and a free software for MS Windows, Linux and MacOS.

The Software

To obtain the software please go to:

http://www.wachendorff-prozesstechnik.de/fernwartung-und-fernwirken/alarmmodems/Teleservice-Alarmmodems_ALMIOG01.htmll

(This manual is referenced to the last version of the software present on our web site). The software works with MS Windows (MS 2000, XP, Vista, Seven, 8; 32/64bit), Linux and MacOS.

Characteristics

This product has the following characteristics:

- 2 Digital Outputs;
- 2 Digital Inputs;
- 1 Analog Input;
- SMS alert of the change of state of the Digital/Analog Input;
- Setting Output via SMS and/or call;
- Mountable on 35mm Rail DIN;
- Power Supply 8…24V AC or 8…35V DC;
- Temperature range -20°C / +70°C (-4°F / +158°F).

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1. Security Alert

1.1 General Information

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device are required for each individual application, legal and safety regulation. The same applies also when using accessories.

1.2 Intended Use

Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

1.3 Qualified Personnel

The device can be used only by qualified personnel, strictly in accordance with the specifications.
Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

1.4 Residual Risks

The device is state of the art and is safe. The instrument can represent a potential hazard if they are inappropriately installed and operated by personnel untrained. These instructions refer to residual risks with the following symbol:

This symbol indicates that non-observance of the safety instructions is danger for people to serious injury or death and / or the possibility of damage.

1.5 CE Conformity

The declaration is made by us. You can send an email to eea@wachendorff.de or give us a call if you need it.

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2. Installation

Extract the file downloaded from our web site and follow the procedure to install the software.

Use of Software GSM Alarmmodem ALMIOG0x :

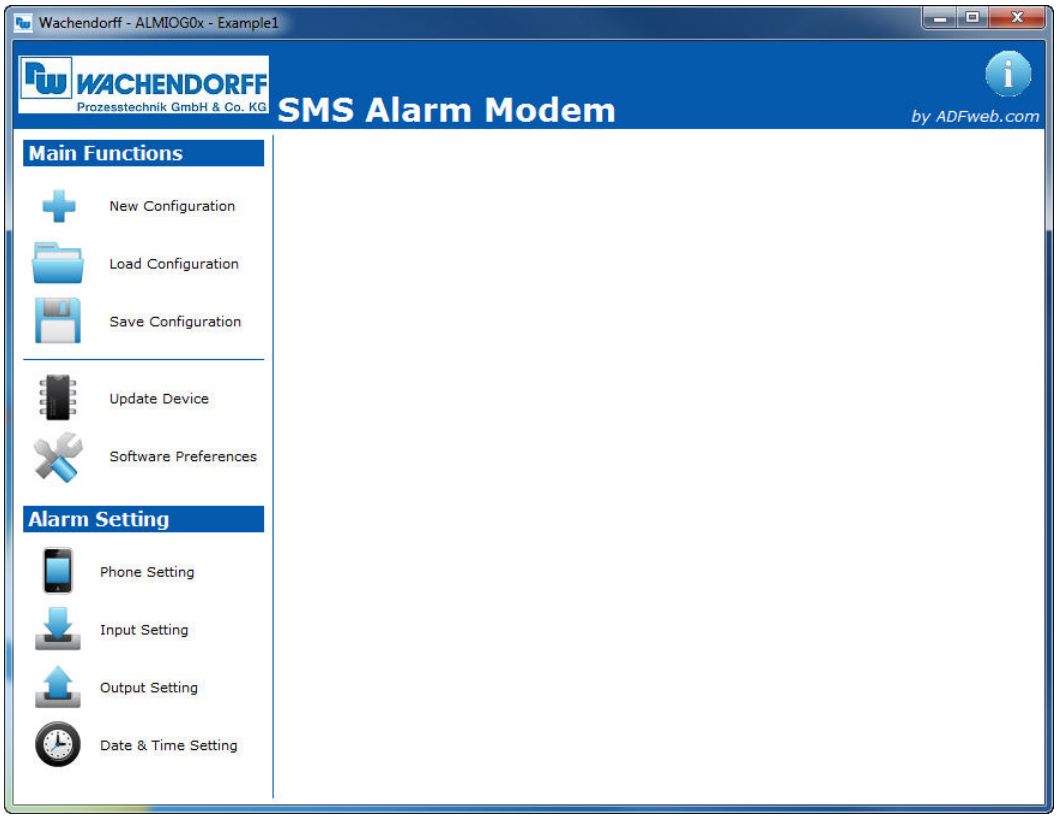

Figure 1: Main window for ALMIOG0x

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2.1 New Configuration

By pressing the "**New Configuration**" button, it is possible to create a new project assigning the name in the field near the button "**OK**" that is used for create it.

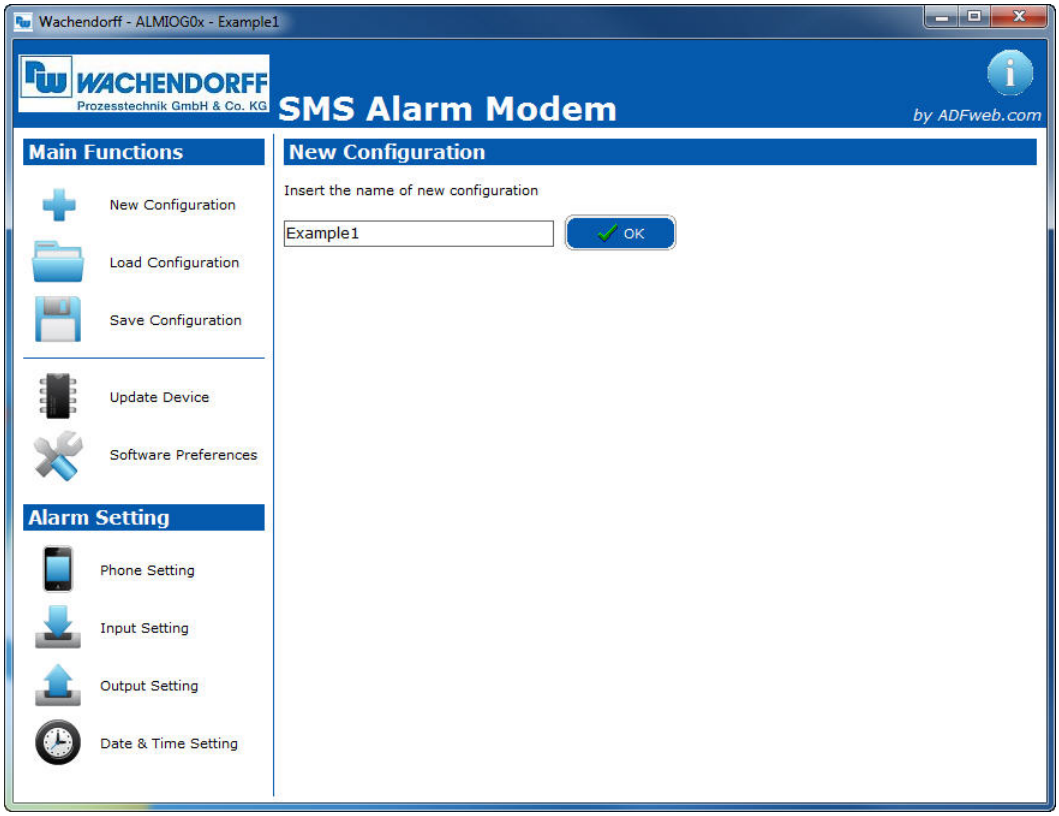

Figure 2: "New Configuration" window

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2.2 Load Configuration

By pressing the "**Load Configuration**" button it is possible to load an existing project by selecting one of the list that appears.

A device configuration can also be imported or exported:

- To clone the configurations of a GSM I/O and Alarm Modem in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open the new folder with the button "**Load Configuration**".

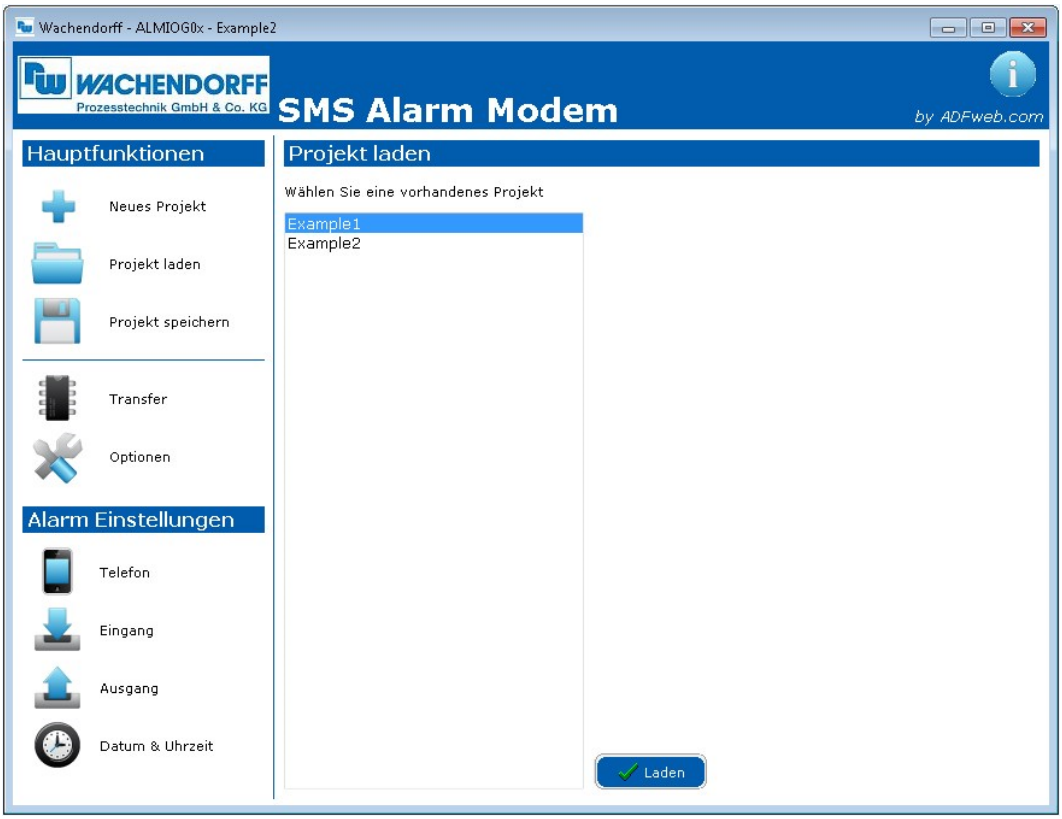

Figure 3: "Load Configuration" window

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2.3 Save Configuration

By pressing the "**Save Configuration**" button it is possible to save the project.

There are two possibilities: or save the current configuration, by pressing the button "**Save**"; or save with a new name by pressing the button "**Save As...**" and writing the name in the field above the button.

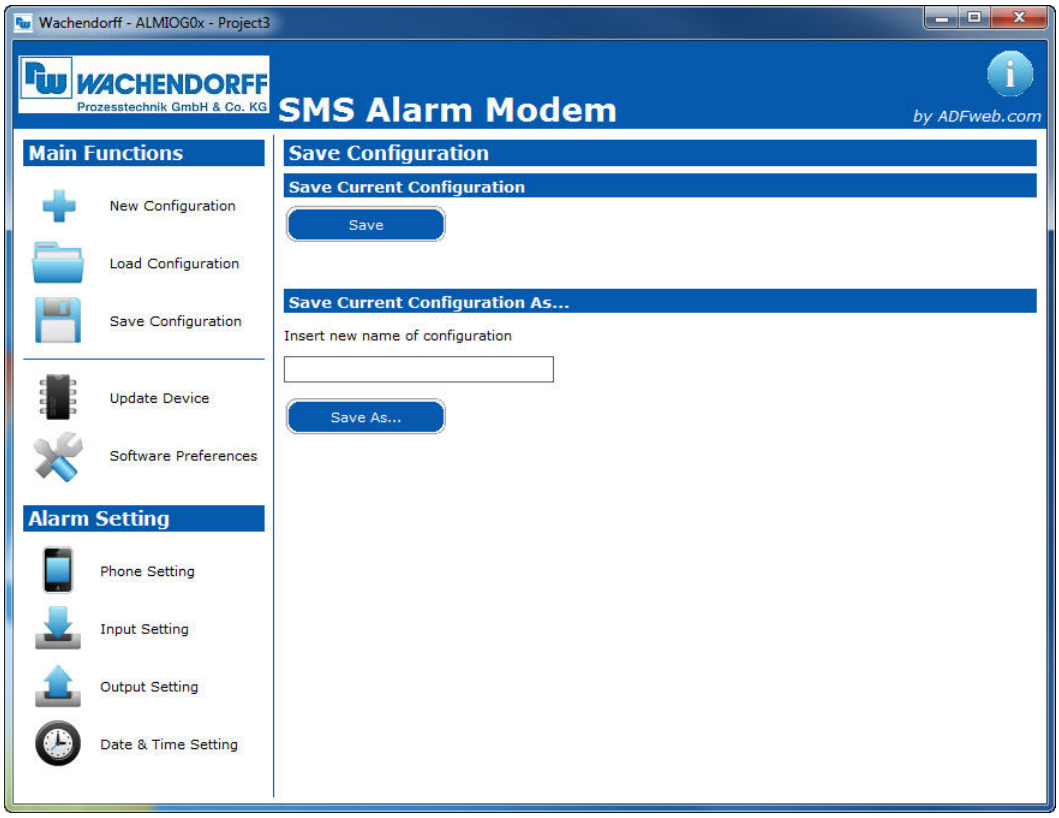

Figure 4: "Save Configuration" window

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2.4 Update Device

By pressing the "**Update Device**" button it is possible to load the created Configuration into the device; and also the Firmware if is necessary.

For doing this follow these instructions:

- Turn On the device;
- Connect the USB cable from the PC to the device;
- Select the COM port;
- Select which operations you want to do. You can select only "**Write Firmware**", only "**Write Configuration**" or both of them;
- Press the "**Update Device**" button to start the upload.

When all operations are "OK" the Configuration/Firmware on the device is correctly updated.

For the updating, the device must be on Boot Mode. This modality is self-managed by the ALMIOG0x. So when you press the "Update Device" button the device is automatically put on Boot Mode and when it have complete the operations is put on Normal Mode.

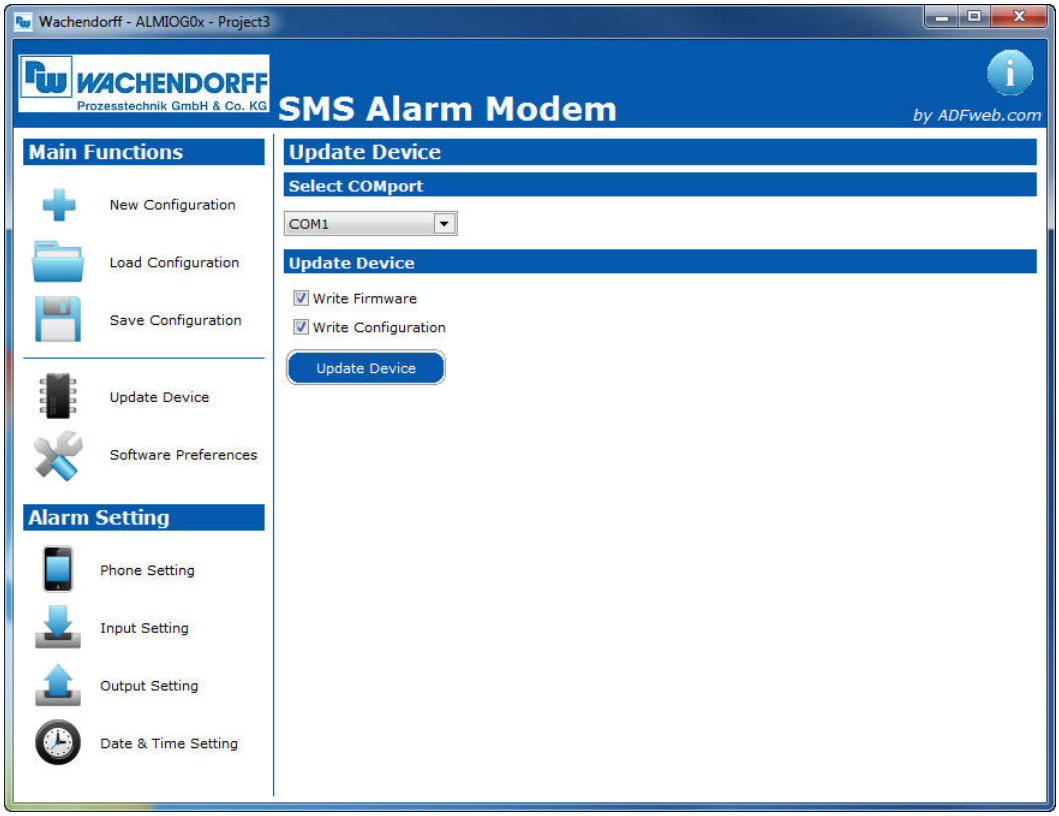

Figure 5: "Update Device" window

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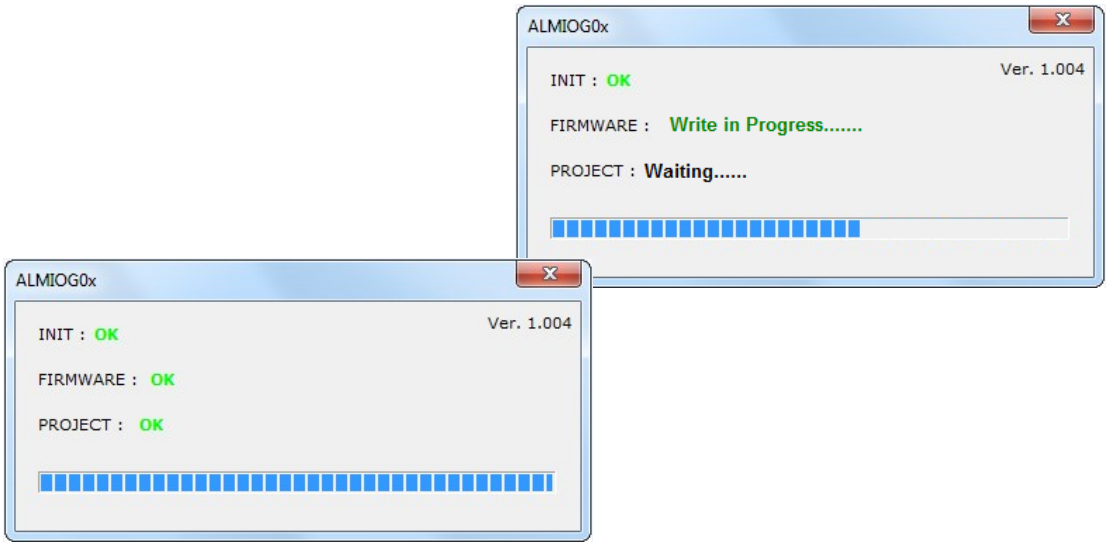
However, if the device doesn't go to Boot Mode automatically, it is necessary to act on the 'Dip-Switch A' (see 'FUNCTION MODES' section for found the correct Dip) and it is necessary to follow these instructions:

- Turn Off the device;
- Put the device at Boot Mode by Dip2 of 'Dip-Switch A';
- Turn On the device;
- Check the LEDs. LED1 and LED3 must blink quickly;
- Connect the USB cable from the PC to the device;

- Select the COM port;
- Select which operations you want to do. You can select only "**Write Firmware**", only "**Write Configuration**" or both of them;
- Press the "**Update Device**" button to start the upload;
- When all operations are "OK" turn Off the device;
- Put the device at Normal Mode by Dip2 of 'Dip-Switch A'.

At this point the Configuration/Firmware on the device is correctly updated.



Note:
When you install a new version of the software it is better if the first time you do the update of the Firmware in the ALMIOG0x device.

Note:
When you receive the device, for the first time, you have to update also the Firmware in the ALMIGOG0x device.

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Warning:
If the Fig. 6 appears when you try to do the Update before require assistance, try these points:

Figure 6: "Protection" window

- Check if the serial COM port selected is the correct one;
- Check if the Cable is connected between the PC and the device;
- Try to repeat the operations for the updating;
- Try to use another USB port;
- Try to restart the PC;
- Try with another PC;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- If you are using Windows Seven or Vista, make sure that you have the administrator privileges;
- Take attention at Firewall lock.

In the case of ALMIGO0x you have to use the software "GSM Alarmmodem ALMIGO01":
http://www.wachendorff-prozesstechnik.de/fernwartung-und-fernwirken/alarmmodems.html?eID=pim_download&rid=281&did=5577

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3. Software Preferences

By pressing the "**Software Preferences**" button it is possible to select the language of the ALMIGO0x.

Figure 7: "Software Preferences" window

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3.1 Phone Setting

By pressing the "**Phone Setting**" button it is possible to insert the "PIN Code" of the SIM Card.

Another thing that is possible to do is enable the Automatic switch of the Time; this by acting the field "**Enable automatic switch in "daylight saving time" and beck (Only for Europe)**". This feature is available only for Europe.

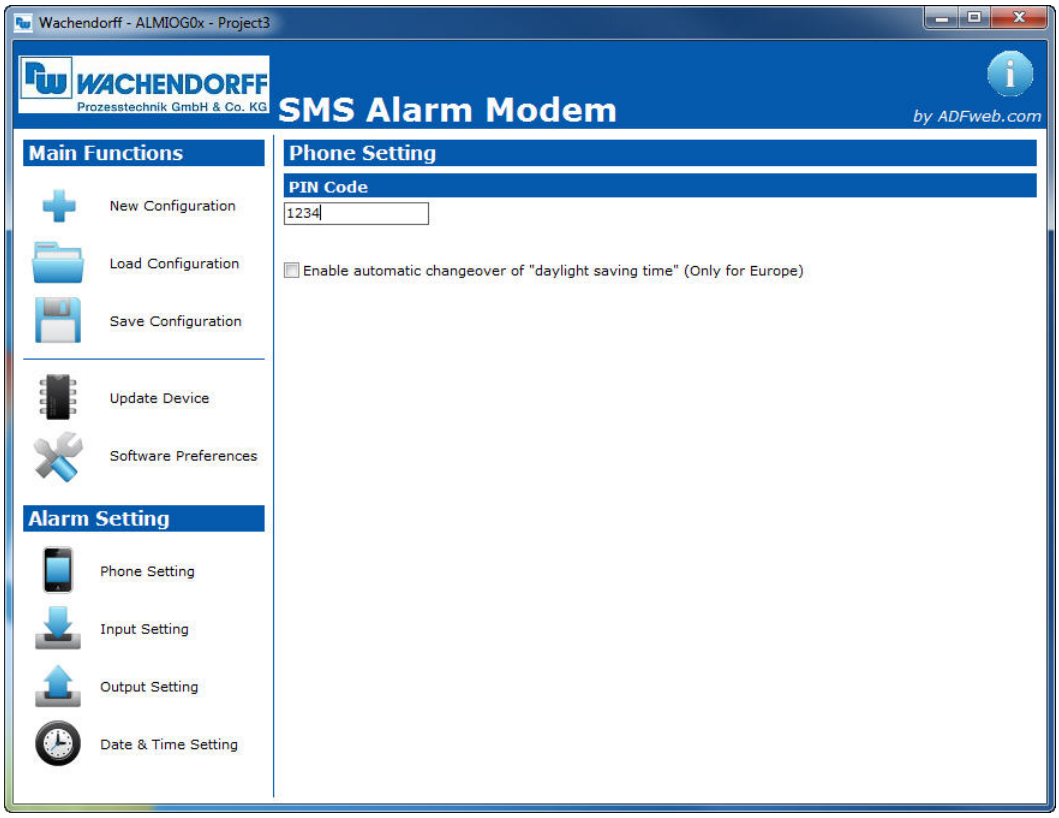

Figure 8: "Phone Setting" window

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3.2 Input Setting

Digital Setting

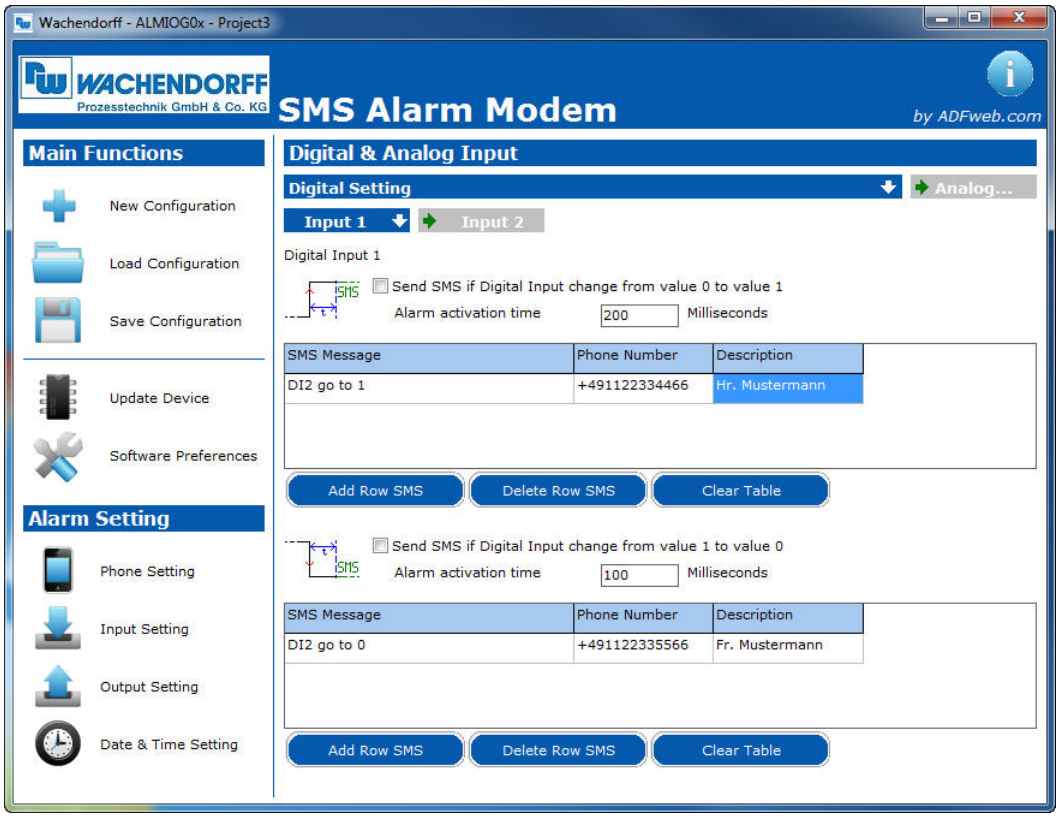
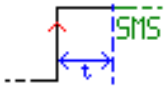


Figure 9: "Input Setting → Digital" window

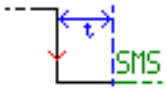
The device has two Digital Inputs, for both of them it is possible to do the same operations described in this section.

There are two possibilities:

- Sending a SMS when the Input changing from 0 to 1 by checking the field "**Send follow SMS when Digital Input change from value 0 to value 1**"; **Signal input "1" : > 8 VDC**



- Sending a SMS when the Input changing from 1 to 0 by checking the field "**Send follow SMS when Digital Input change from value 1 to value 0**"; **Signal input "0" : < 3 VDC**



For both cases there is the possibility to insert also different phone numbers and different SMS texts.

For both cases the SMS will be sent only when the Input is to the other state for at least the time inserted in the field "**For a time major of …… Milliseconds**".

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Analog Setting

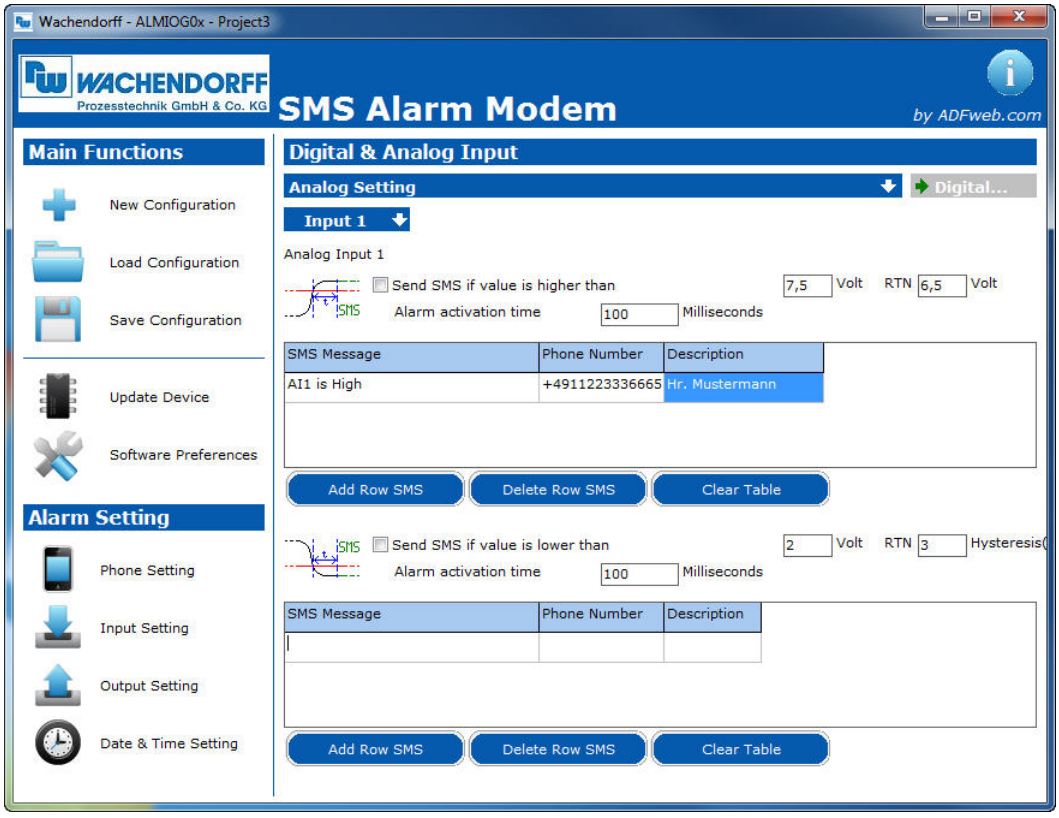

Figure 10: "Input Setting → Analog" window

The device has one Analog Input. The operations are described in this section.
There are two possibilities:

- Sending a SMS when the Input goes above a certain threshold voltage by checking the field "**Send follow SMS when Analog Input is Higher than …… Volt**";

- Sending a SMS when the Input goes below a certain threshold voltage by checking the field "**Send follow SMS when Analog Input is Lower than …… Volt**".

For both cases there is the possibility to insert also different phone numbers and different SMS texts.

For both cases the SMS will be sent only when the Input is above or below for at least the time inserted in the field "**For a time major of …… Milliseconds**".

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3.3 Output Setting

The device has two Digital Outputs. For both of them it is possible to do the same operations described in this section. i.e. using SMS and/or Call for trigger an event.

SMS

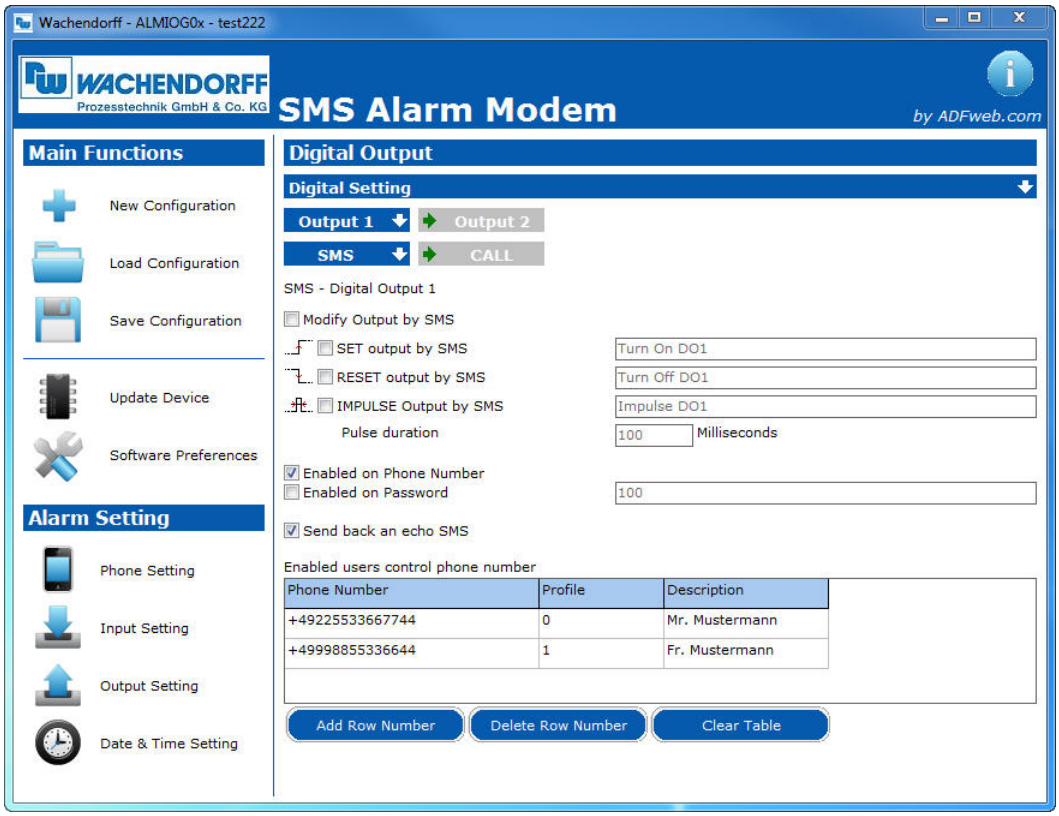

Figure 11: "Output Setting → SMS" window

By pressing the field "**SMS**" it is possible to enable the function of change the state of output using a SMS.

There are three possibilities:

- "**SET output by SMS**", used for close the relay contact:

- "**RESET output by SMS**", used for open the relay contact:

- "**IMPULSE Output by SMS**", used for make an impulse with a defined duration. The duration of the impulse is defined with the field "**Pulse duration …… Milliseconds**".

The maximum value that the impulse can have is 60000ms.

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For all cases there is the possibility to insert, in the field near the event, the text of the SMS that is used for trigger the event.

If the field "**Enabled on Phone Number**" is checked, only the phone number written in the table is able to do the operation to the Digital Output; otherwise all numbers that send the defined SMS are able to do the operation.
If the field "**Enabled on Password**" is checked, the SMS sent must contain the password written in the field near the command.

It is possible to select only one of them, both of them or none of them. If none of them are selected, all numbers can perform an event. Below there are some examples of the functioning with all cases.

It is possible to write also other words in the SMS, the important thing is that the SMS text have to contain exactly the text defined in the compositor.

The Password can have a maximum length of 16 characters. All characters are accepted.

If the field "**Send back an echo SMS**" is checked, the device sends back to the sender the same SMS if the event is successful done.

In the table "Enabled users control phone number" it is possible to insert the various 'Phone Numbers' and for each Number give a 'Profile'.
The possible 'Profile' are:

- 0: Always enabled;
- 1: Weekly 1;
- 2: Weekly 2;
- 3: Weekly 3;
- 4: Daily 1;
- 5: Daily 2;
- 6: Daily 3;
- 7: Date 1 [Not used in this moment];
- 8: Date 2 [Not used in this moment];
- 9: Date 3 [Not used in this moment].

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Phone Number	Enable on Phone Number	Enable on Password	SET	RESET	IMPULSE	SMS sent, by	Result
a	X		SO1	RO1	IO1	SO1, a	Set Digital Output 1
						sStO1, a	None
						sRO1, a	Reset Digital Output 1
						Imp2, a	None
b		1234	SO1	RO1	IO1	1234 SO1, b	Set Digital Output 1
						RO1 1234, b	Reset Digital Output 1
						1234 IO1, b	Impulse on Digital Output 1
						Imp1, b	None
c	X	1234	SO1	RO1	IO1	1234 SO1, c	Set Digital Output 1
						RO1 1234, c	Reset Digital Output 1
						1234 IO1, c	Impulse on Digital Output 1
						IO1, c	None
d			SO1	RO1	IO1	1234 SO1, d	Set Digital Output 1
						RO1 1234, n	Reset Digital Output 1
						IO1, b	Impulse on Digital Output 1
						Imp2, a	None

Figure 11: “Examples” for “Enabled on Phone Number” and “Enabled on Password”

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Call

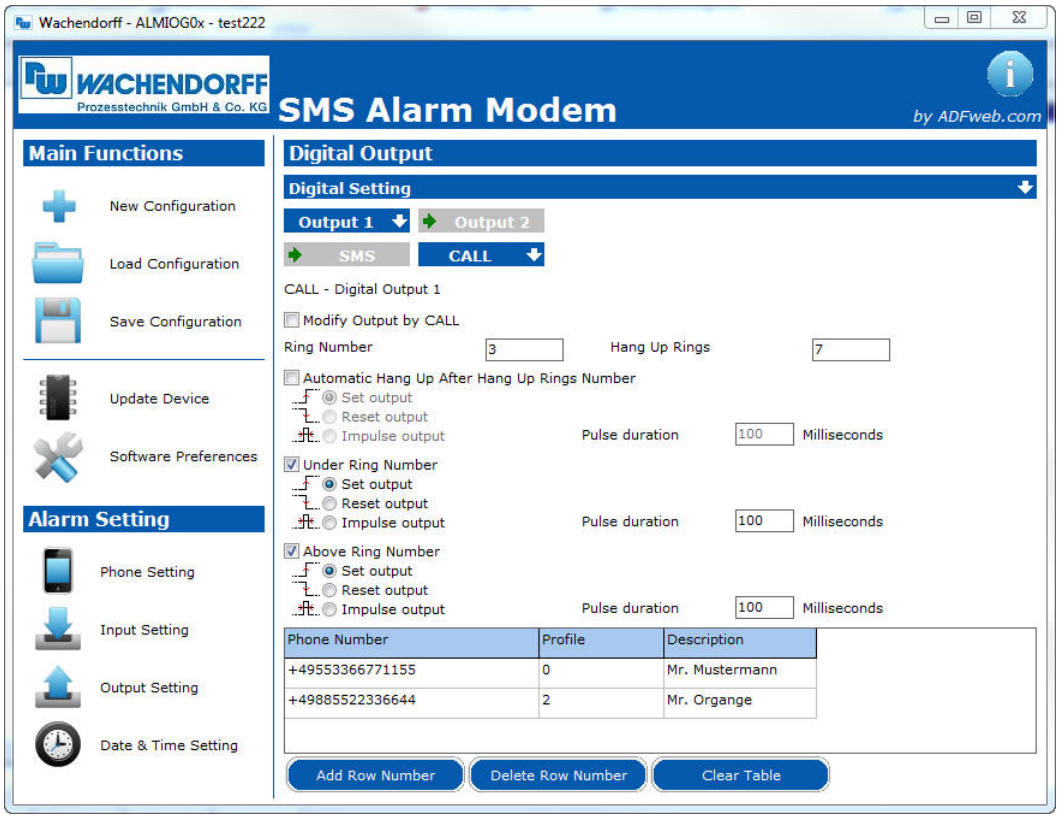

Figure 12: " Output Setting → CALL" window

By pressing the field "**CALL**" it is possible to enable the function of change the state of output using a Phone Call.

There are three types of operations:

- "**Automatic hang Up after Hang Up Risings Number**", used for hang up after the numbers of rings expressed in the field "**Hang Up Rings**";
- "**Under Ring Number**", used for trigger an event if the number of rings is under the value expressed in the field "**Ring Number**";
- "**Above Ring Number**", used for trigger an event if the number of rings is above the value expressed in the field "**Ring Number**".

For all operations, there are the three possibilities like the use of SMS, i.e.:

- "**Set output**", used for close the relay contact;

- "**Reset output**", used for open the relay contact;

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- "**Impulse output**", used for make an impulse with a defined duration. The duration of the impulse is defined with the field "**Pulse duration …… Milliseconds**".

In the table it is possible to insert the various 'Phone Numbers' and give a 'Profile' for each Number.
The possible 'Profile' are the same described in the subsection 'SMS' of section 'OUTPUT SETTING'.

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4. Date & Time Setting

By pressing the "**Date & Time Setting**" button it is possible to change the Date & Time of the device and create the Profiles.
The Profiles are used for limiting the time of the operations that the users, that have assigned a Profile, can perform.

Profile 0 is used for give to an user the possibility to make the operations all the time in a day.

4.1 Date & Time

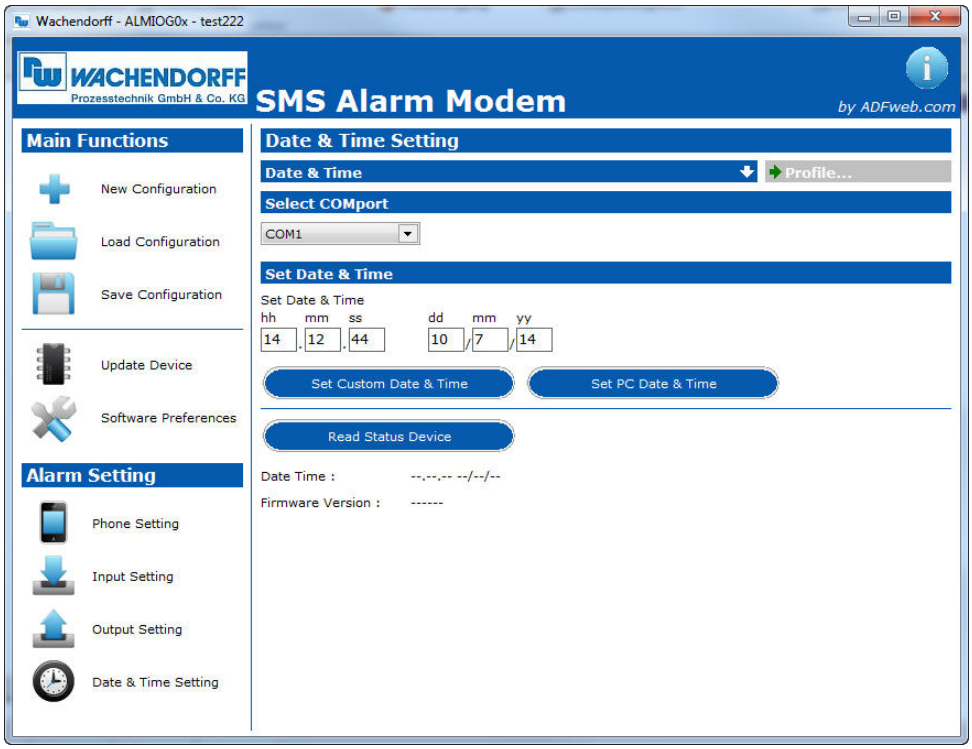

Figure 12: "Date & Time Setting → Date & Time" window

In this section it is possible to change the Date & Time of the device.

There are two possibilities:

- Insert an own Date & Time, by compiling the fields "**hh**", "**mm**", "**ss**", "**dd**", "**mm**", "**yy**"; and then pressing the button "**Set Custom Date & Time**";
- Insert the PC date & Time, by pressing the button "**Set PC Date & Time**".

It is possible also read the Date & Time of the device and also the Firmware Version by pressing the "**Read Status Device**" button.

For doing these operations it is necessary to connect the device through the USB to the PC and select the COM port.

The device must be at Normal Mode.

For the year (yy) you have to insert only the last two digits.

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4.2 Profile (Weekly)

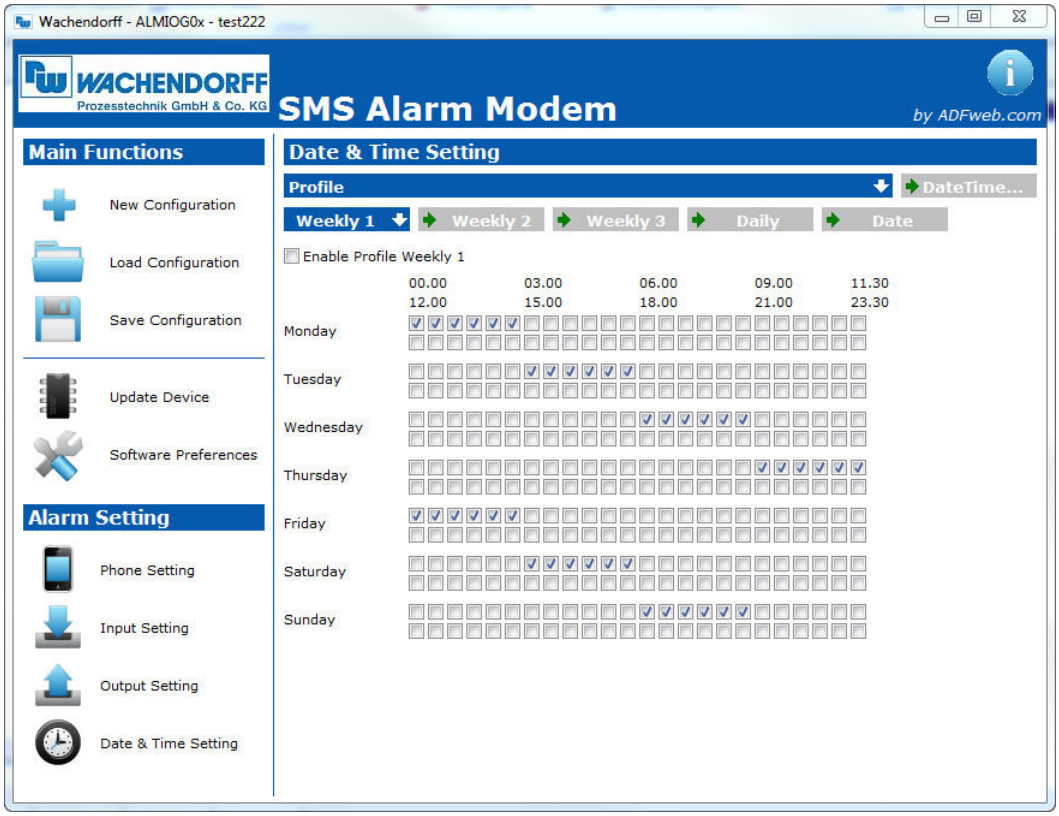

Figure 12: "Date & Time Setting → Profile → Weekly" window

There is the possibility to define up to three Weekly Profile "**Weekly 1**", "**Weekly 2**", "**Weekly 3**".

For enable the Profile the field "**Enable Profile Weekly X**" must be checked.

For each day there are 48 time slot of 30 minutes each.

If an user have a Profile but the Profile isn't enabled, the user cannot perform the event.

If you want to use one of Daily Profile, you must insert one of these numbers in the Cell Profile of "Output Setting→SMS" or "Output Setting→CALL" sections:

- 1: for Weekly 1;
- 2: for Weekly 2;
- 3: for Weekly 3.

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4.3 Profile (Daily)

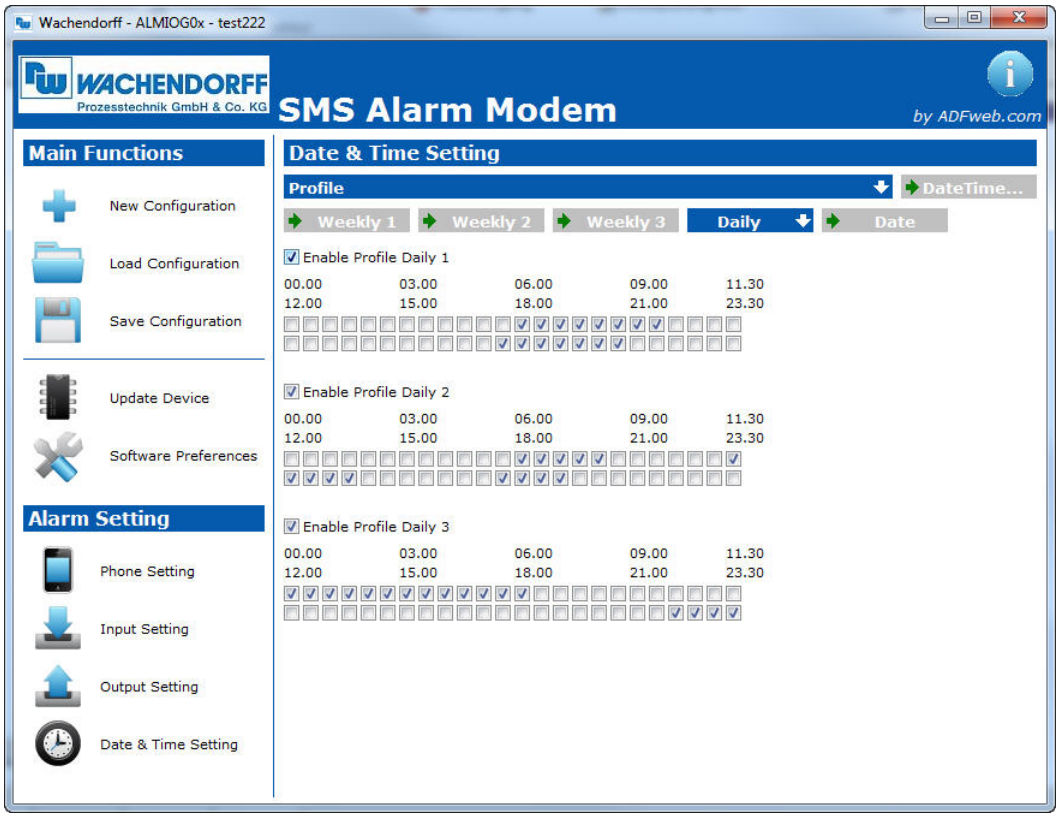

Figure 13: "Date & Time Setting → Profile → Daily" window

There is the possibility to define up to three Daily Profile "**Daily**".

For enable the Profile the field "**Enable Profile Daily X**" must be checked.

For each day there are 48 time slot of 30 minutes each.

If an user have a Profile but the Profile isn't enabled, the user cannot perform the event.

If you want to use one of Daily Profile, you must insert one of these numbers in the Cell Profile of "Output Setting→SMS" or "Output Setting→CALL" sections:

- 4: for Daily 1;
- 5: for Daily 2;
- 6: for Daily 3.

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5. Connection Scheme

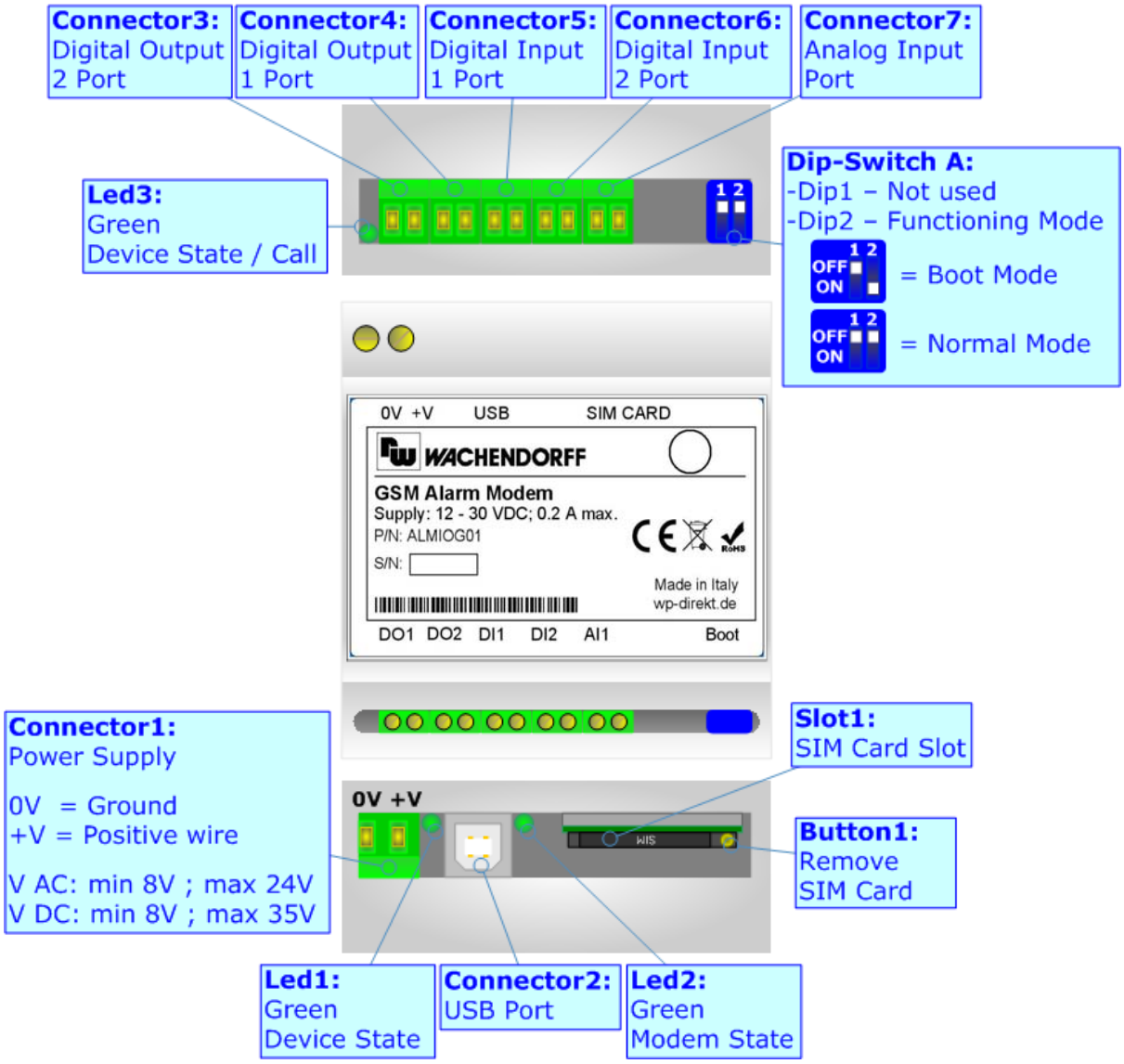

Figure 14: Connection scheme for ALMIOG01

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5.1 Power Supply

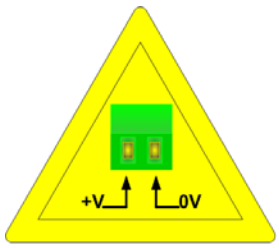
The device can be powered at 8…24V AC and 8…35V DC. For more details see the two tables below.

VAC ~		VDC ⎓	
Vmin	**Vmax**	**Vmin**	**Vmax**
8V	**24V**	**8V**	**35V**

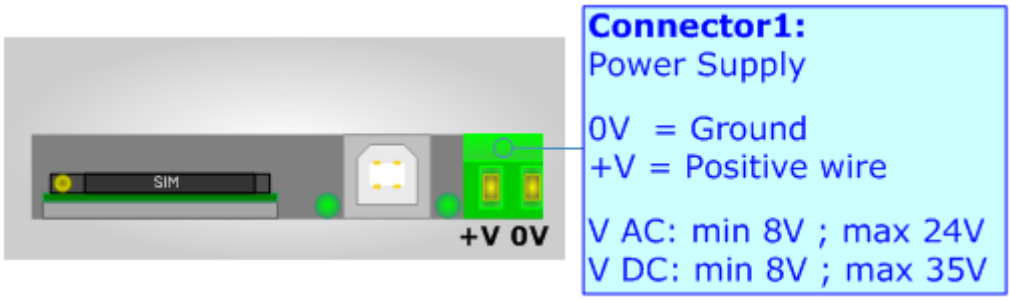
Consumption at 24V DC:

Device	W/VA
ALMIGO0x	3.5

Caution: Not reverse the polarity power



ALMIGO0x



Note: The device cannot be fed only by the USB port (Connector2), but it is necessary to use an external power supply on ‘Connector1’.

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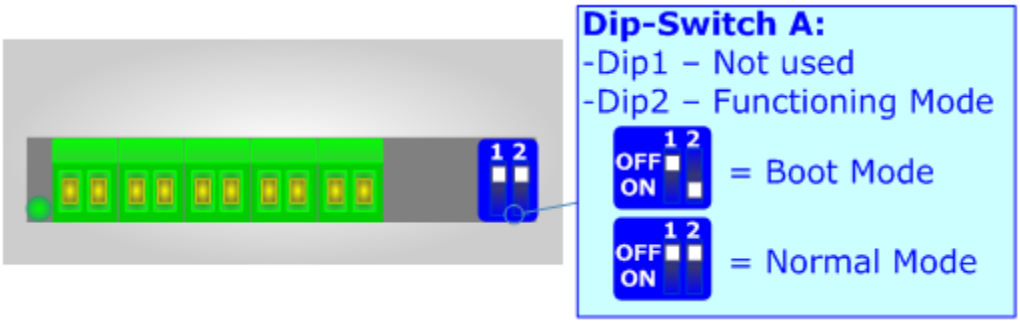
5.2 Function Modes

The device has got two functions mode depending of the position of the Dip2 of 'Dip-Switch A':

- The first, with Dip2 in Off position (factory setting), is used for the normal working of the device.
- The second, with Dip2 in On position, is used for upload the Project and/or Firmware.

For the operations to follow for the updating (see 'UPDATE DEVICE' section).

According to the functioning mode, the LEDs will have specifics functions (see 'LEDS' section).



Note: Using the "GSM Alarmmodem ALMIOG0x" software it is possible to put the device at 'Boot Mode' for the updating of Project and/or Firmware, and also put the device at 'Normal Mode' when these operations are finished. This without restart the device and without operate with 'Dip-Switch A' 'Dip2'.

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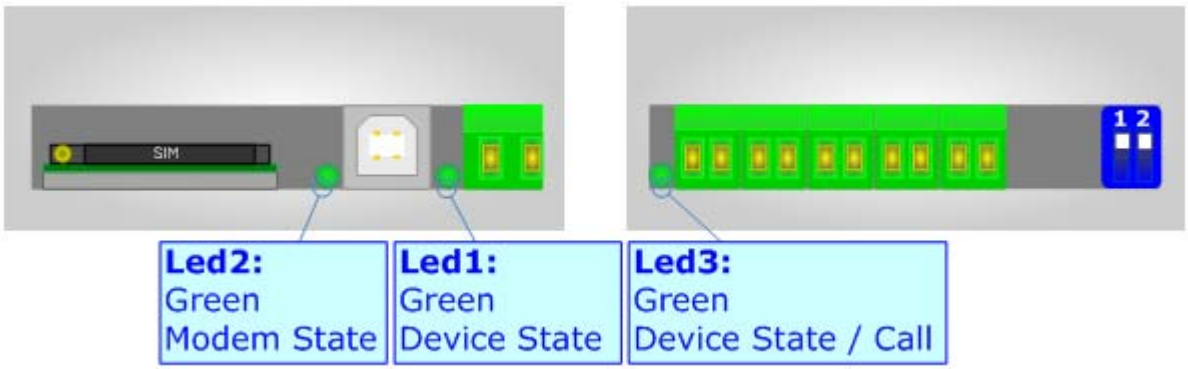
5.3 LEDS

The device has got three green LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: Device State	Blink slowly	Blink quickly
2: Modem State	**Off:** Not initialized. Call in progress. **Regular flashing:** Initializing **3 second On, ½ second Ooff:** Initialized and connected to the phone cell	Off
3: Device State / Call	**Blink slowly:** Run **Blink quickly:** Call in progress	Blink quickly



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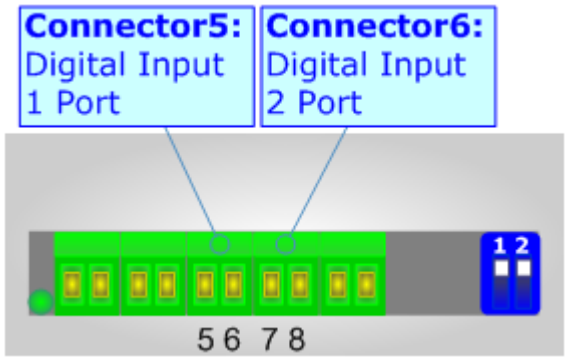
5.4 Digital Input

There are two types of Digital Input that the device can have:

- The one that controls with the signal on the Positive wire;
- The one that controls with the signal on the Negative wire.



Pin	Description	Port
5	Positive wire	Digital Input 1 (DI1)
6	Negative wire	
7	Positive wire	Digital Input 2 (DI2)
8	Negative wire	

Warning: Maximum voltage applied: 48V DC

Warning: Minimum voltage applied: 12V DC

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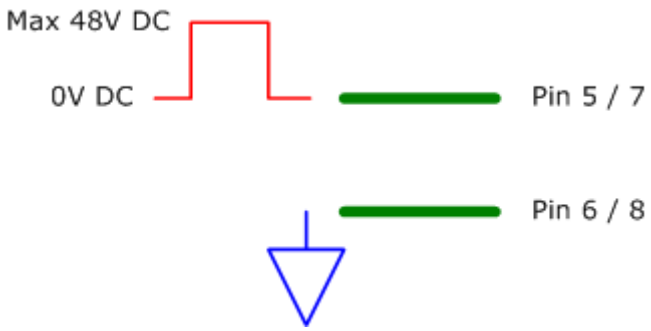
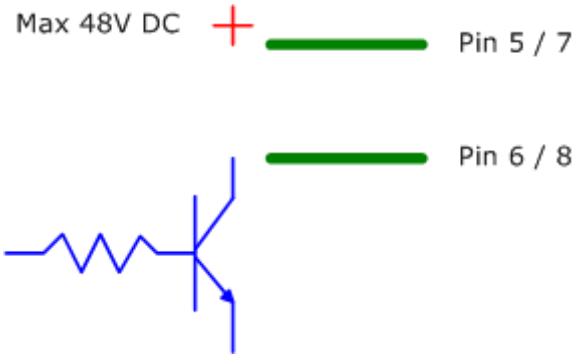
Positive wire control

In this case the Input have a fixed signal that is the ground of the signal (Pin 6 / 8) and to the other Pin (5 / 7) there is the positive signal that can be applied or not.



Negative wire control

In this case the Input have the fixed signal in the Positive wire (Pin 5 / 7) and the other Pin (6 / 8) is driven, for example, by an Open Collector output.



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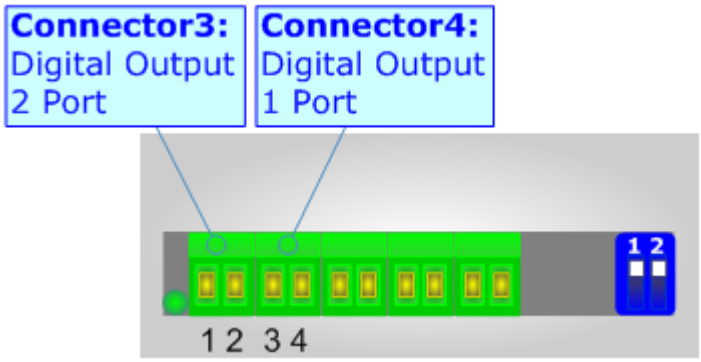
5.6 Digital Output

The Digital Output are clean contact relays. It is possible to drive a load of maximum 24V DC that consume 250mA.



Pin	Description	Port
1	Relay contact	Digital Output 2 (DO2)
2	Relay contact	
3	Relay contact	Digital Output 1 (DO1)
4	Relay contact	

Warning: Maximum voltage applied: 24V DC

Warning: Maximum current: 250mA

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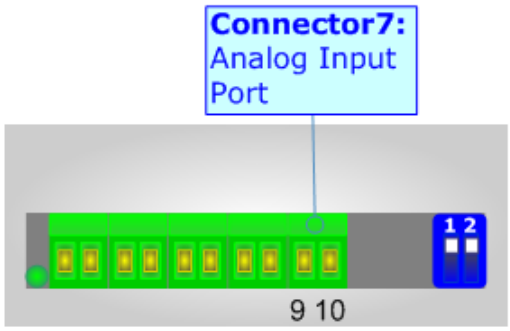
5.7 Analog Input

The Analog Input is 0…10V DC type. The conversion is made by a 10-bit ADC.

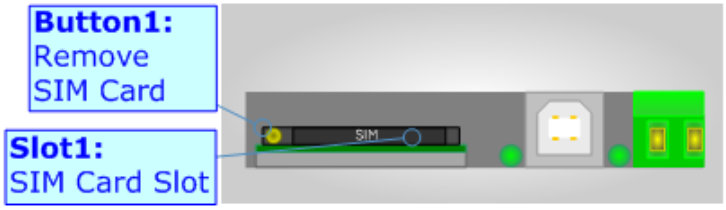


Pin	Description	Port
9	Negative wire	Analog Input (AI)
10	Positive wire (max 10V DC)	

Warning: Maximum voltage applied: 10V DC

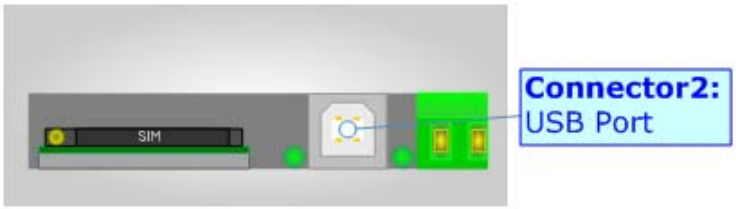
5.8 SIM

For removing the SIM card from the housing you must push the ‘Button1’ and extract the SIM-holder.



5.9 USB

The USB connector (Connector2) is a Type-B Female. So the cable must be a Type-B Male.



5.10 Antenna

The Antenna connector is a SMA Female (‘Female Outer Shell’ and ‘Female Receptacle’) so the Antenna must have a SMA Male connector.

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6. Mechanical Dimensions

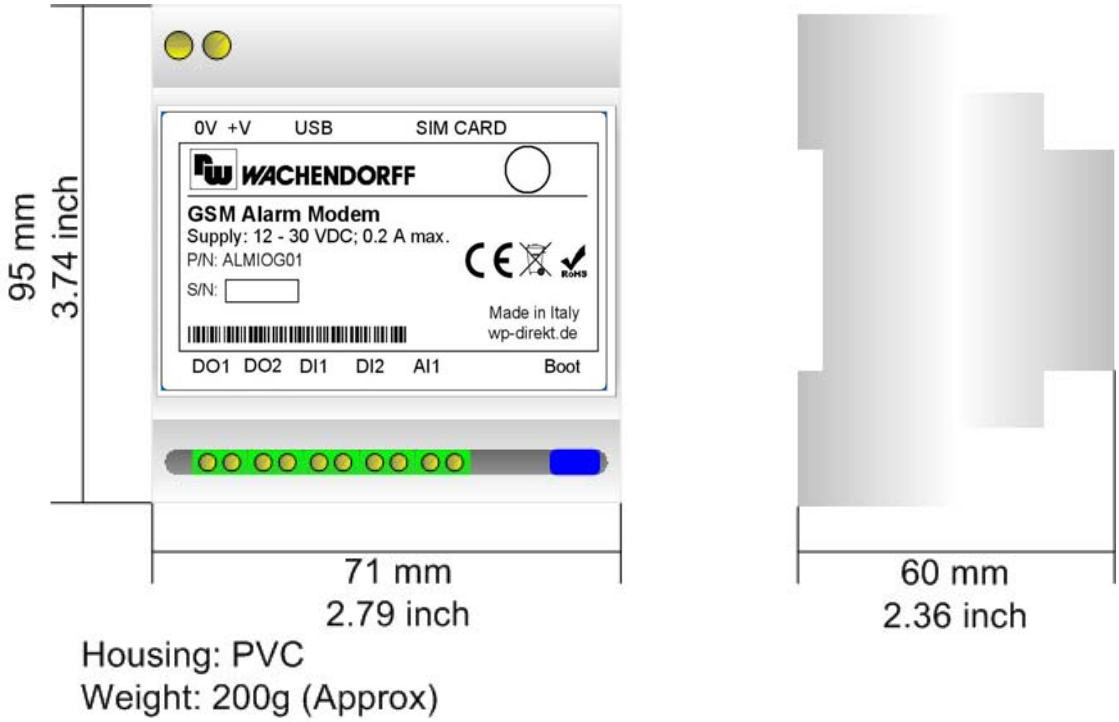

Figure 15: Mechanical dimensions scheme for ALMIGO0x

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7. Ordering Information

The ordering part number is formed by a valid combination of the following:

ALMIOG01 = GSM Alarm Modem with 8 cm rod antenna

ALMIOG02 = GSM Alarm Modem with mobile antenna, 5m cable

Accessories

ALMOIG0x = Software configurator

PS24V03AA = Power Supply for DIN rail, 230VAC to 24VDC@3A

KABUSB21 = Programming Cabel USB-A to USB-B, 1,8Meter Cabel

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WEEE information

Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).
This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE

The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

CE MARKING

The product conforms with the essential requirements of the applicable EC directives.

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For fast and easy technical support for your products, consult our internet support at www.wachendorff-prozesstechnik.de.
Otherwise contact us at the address eea@wachendorff.de

7.4 Return Policy

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

1) Obtain a Product Return Number (PRN) from our internet support at Wachendorff Prozesstechnik GmbH & Co.KG. Together with the request, you need to provide detailed information about the problem.
2) Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.

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